

Family: FAGACEAE (angiosperm)

Scientific name(s): Fagus sylvatica

Commercial restriction: no commercial restriction

Note: Temperate western european species found until 60th northern parallel and until an altitude of 1500 meters.

## WOOD DESCRIPTION

Color: light brown  
Sapwood: not demarcated  
Texture: fine  
Grain: straight  
Interlocked grain: absent

Note: Light brown wood from cream white to pale pink sometimes with reddish areas near the heart. Thin characteristic silver figure. Grain sometimes wavy.

## LOG DESCRIPTION

Diameter: from 40 to 90 cm  
Thickness of sapwood:  
Floats: pointless  
Log durability: low (must be treated)

## PHYSICAL PROPERTIES

Physical and mechanical properties are based on mature heartwood specimens. These properties can vary greatly depending on origin and growth conditions.

	<u>Mean</u>	<u>Std dev.</u>
Specific gravity *:	0,71	0,03
Monnin hardness *:	4,2	0,9
Coeff. of volumetric shrinkage:	0,54 %	0,04 %
Total tangential shrinkage (TS):	11,6 %	1,2 %
Total radial shrinkage (RS):	5,7 %	0,9 %
TS/RS ratio:	2,0	
Fiber saturation point:	32 %	
Stability:	poorly stable	

## MECHANICAL AND ACOUSTIC PROPERTIES

	<u>Mean</u>	<u>Std dev.</u>
Crushing strength *:	57 MPa	6 MPa
Static bending strength *:	111 MPa	9 MPa
Modulus of elasticity *:	15300 MPa	1050 MPa

(\*: at 12% moisture content, with 1 MPa = 1 N/mm<sup>2</sup>)

## NATURAL DURABILITY AND TREATABILITY

Fungi and termite resistance refers to end-uses under temperate climate. Except for special comments on sapwood, natural durability is based on mature heartwood. Sapwood must always be considered as non-durable against wood degrading agents.  
E.N. = Euro Norm

Funghi (according to E.N. standards): class 5 - not durable

Dry wood borers: heartwood durable but sapwood not clearly demarcated

Termites (according to E.N. standards): class S - susceptible

Treatability (according to E.N. standards): class 1 - easily permeable

Use class ensured by natural durability: class 2 - inside or under cover (dampness possible)

Species covering the use class 5: No

Note: Red heartwood is not permeable to preservative products.

## REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: requires appropriate preservative treatment

In case of risk of temporary humidification: requires appropriate preservative treatment

In case of risk of permanent humidification: use not recommended

## DRYING

Drying rate: slow  
 Risk of distortion: high risk  
 Risk of casehardening: yes  
 Risk of checking: high risk  
 Risk of collapse: yes

Possible drying schedule: 2

M.C. (%)	Temperature (°C)		Air humidity (%)
	dry-bulb	wet-bulb	
Green	50	47	84
40	50	45	75
30	55	47	67
20	70	55	47
15	75	58	44

This schedule is given for information only and is applicable to thickness lower or equal to 38 mm.  
 It must be used in compliance with the code of practice.  
 For thickness from 38 to 75 mm, the air relative humidity should be increased by 5 % at each step.  
 For thickness over 75 mm, a 10 % increase should be considered.

## SAWING AND MACHINING

Blunting effect: normal  
 Sawteeth recommended: stellite-tipped  
 Cutting tools: tungsten carbide  
 Peeling: good  
 Slicing: good

Note: The frequent presence of growth stresses in the logs might create a critical sawing. BEECH wood has a good aptitude for bending.

## ASSEMBLING

Nailing / screwing: good but pre-boring necessary  
 Gluing: correct

## COMMERCIAL GRADING

Appearance grading for sawn timbers: According to European standard EN 975-1 (April 2009)  
 Possible grading for boules: F-BA, F-B1, F-B2, F-B3  
 Possible grading for individual selected board: F-SA, F-S1, F-S2, F-S3  
 Possible grading for strips and square edged timbers: F-F1, F-F2, F-F3  
 Possible grading for prepared timbers: F-DA, F-D1, F-D2  
 The letter "R" after the class (F-F1R for instance) means "red heart included"

## FIRE SAFETY

Conventional French grading: Thickness > 14 mm : M.3 (moderately inflammable)  
 Thickness < 14 mm : M.4 (easily inflammable)

Euroclasses grading: D s2 d0

Default grading for solid wood, according to requirements of European standard EN 14081-1 annex C (April 2009). It concerns structural graded timber in vertical uses with mean density upper 0.35 and thickness upper 22 mm.

## END-USES

Current furniture or furniture components  
 Moulding  
 Arched goods  
 Interior joinery  
 Flooring  
 Note: BEECH wood can easily be stained.

Veneer for back or face of plywood  
 Turned goods  
 Seats  
 Boxes and crates  
 Wood-ware

## MAIN LOCAL NAMES

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<u>Country</u>	<u>Local name</u>	<u>Country</u>	<u>Local name</u>
Germany (temperate timber)	BUCHE	Spain (temperate timber)	HAYA
France (temperate timber)	HÊTRE	Italia (temperate timber)	FAGGIO
United Kingdom (temperate timber)	BEECH		

